

effective services and in assuring that appropriate infrastructure exists.

INFRASTRUCTURE

Transportation Systems

Cambridge is a city rich in transportation amenities. The Massachusetts Bay Transportation Authority (MBTA) operates both rail and bus service within the city. The Green Line has one stop in Cambridge (Lechmere), while the Red Line runs through the entire length of the City (with stops at Kendall/ MIT, Central Square, Harvard Square, Porter Square, Davis Square in Somerville, and Alewife). The Orange Line Station at Community College is also within walking distance for some in East Cambridge. There is also a commuter rail station in Porter Square with service to points west as far as Fitchburg. Numerous bus lines run throughout the city, including the recently implemented CT1 and CT2, cross-town busses that are part of the early phases of the MBTA's plan to create a more comprehensive urban-ring transit system. The City has also helped to create a public private partnership in order to sponsor the EZ Ride Shuttle, connecting Cambridgeport, Kendall Square, and North Station.

With regards to major roadways, Route 2 crosses Cambridge and is a major commuter corridor from the west to Boston. Likewise, Memorial Drive along the Charles River and Alewife Brook Parkway are part of the Massachusetts regional pleasure roadway network. Cambridge is a major access point to the Massachusetts Turnpike, although the highway is not located in city proper. The city also serves as a major truck route between the Massachusetts Turnpike and Interstates 93 and 95 north of Boston, as trucks are banned from the Turnpike Extension east of Cambridge.

The City, through its Environmental Program, is also actively encouraging other Transportation Demand Management (TDM) techniques including shuttle buses, car and van pools and bicycle use. The TDM Ordinance requires large employers to engage in planning and reporting in order to meet certain mode splits among their workforce. The goal of this program is to slow the rate of growth in traffic congestion within the city. The City also has a Traffic Calming Program, whereby physical design features are incorporated into roadway improvements that slow traffic and make streets safer for pedestrians and bicyclists. Bicycle and Pedestrian Committees give residents a voice in transportation planning.

One of the emerging processes that will affect the City's attitude toward automobile use is the Climate Protection Plan. This plan is being developed by a task force in order to determine how much greenhouse gas pollution is produced in the City, and discuss possible reduction measures. The draft plan recommends a target of a twenty percent reduction from 1990 levels.

In order to reach this target, the following transportation actions will be required: a reduction in single-occupancy vehicle commuting, improved facilities for walking and biking, reduced motor vehicle travel with promotion and education programs, reduced motor vehicle emissions, and the promotion of transit improvements.

Probably the most significant challenge facing the City's transportation planners in upcoming years will be the development of North Point; while the area's new residents will have easy access to the Green and Orange Lines, any increase in vehicle traffic will stress the already overburdened O'Brien Highway and will increase traffic on local residential streets. One potential transportation benefit to the North Point development is the relocation and modernization of the Lechmere Station through a land swap. This will be a necessary step in the eventual implementation of the urban ring project, which could reduce the number of

commuters who feel the need to drive to work in Cambridge.

Water Supply Systems

Cambridge has its own water supply, although the system is not located solely within the city's municipal boundaries. The main reservoirs, Stony Brook and Hobbs Brook, are located along Route 128 (Interstate 95) in the municipalities of Waltham, Lincoln, Lexington and Weston. Water is piped to Fresh Pond in Cambridge, treated, and then sent to the covered Payson Park Reservoir in Belmont for storage before use. The combined capacity of the up county reservoirs is 3,095 million gallons. Fresh Pond Reservation holds 1,308 million gallons and Payson Park can hold up to 32 million gallons. Given Cambridge's average daily demand of 14 million gallons, and assuming that rainfall remains sufficient, the City has a reliable system for the delivery of water.

The most significant recent development in the Cambridge water system is the state-of-the-art water treatment facility. Between 1998 and March of 2001, the City relied on the Massachusetts Water Resources Authority (MWRA) water systems, while a new water treatment facility was being developed. This new facility ensures that Cambridge's water supply will be compliant with all current and future regulations for the foreseeable future.

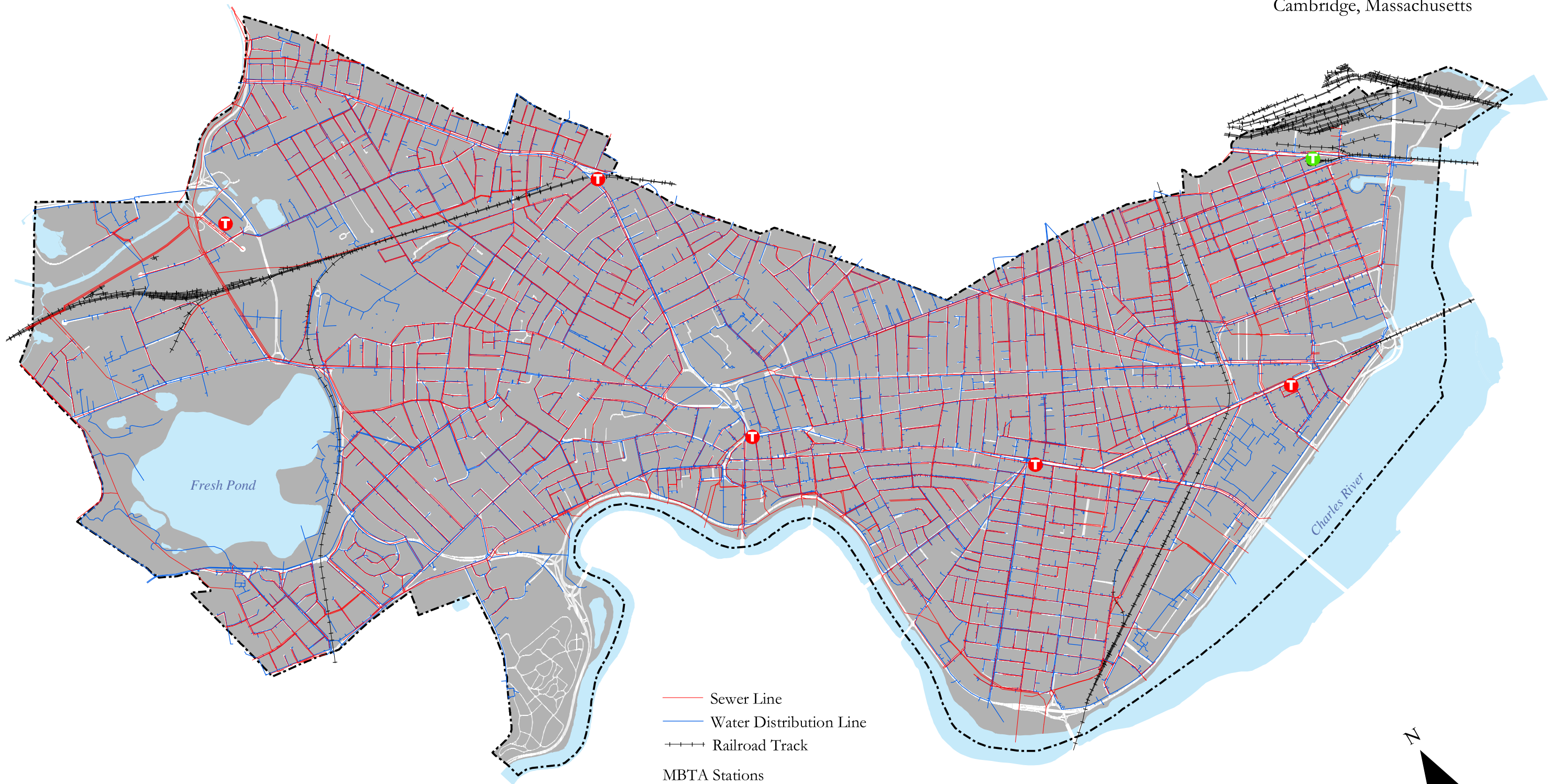
Sewer Service

The city is part of the MWRA sewer system, which operates sewer-pumping stations at the eastern end of the city in North Point and in Cambridgeport at Cottage Farm (Magazine Beach.) These stations serve both the city and communities to the west of Cambridge and connect to the Deer Island treatment facility.

Between 1998 and 2002, the City of Cambridge Public Works Department made major capital improvements to the city's sewer system in order to bring wastewater discharges into Boston Harbor into compliance with federal and state pollution control requirements. This Sewer Separation and Stormwater Management Program was honored with the American Academy of Environmental Engineers (AAEE) Honor Award for Excellence in Environmental Engineering.

Infrastructure

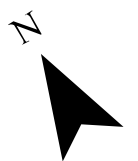
Cambridge, Massachusetts



- Sewer Line
- Water Distribution Line
- Railroad Track
- MBTA Stations
 - Red Line
 - Green Line

Open Space Plan

Community Development Department
Cambridge, Massachusetts



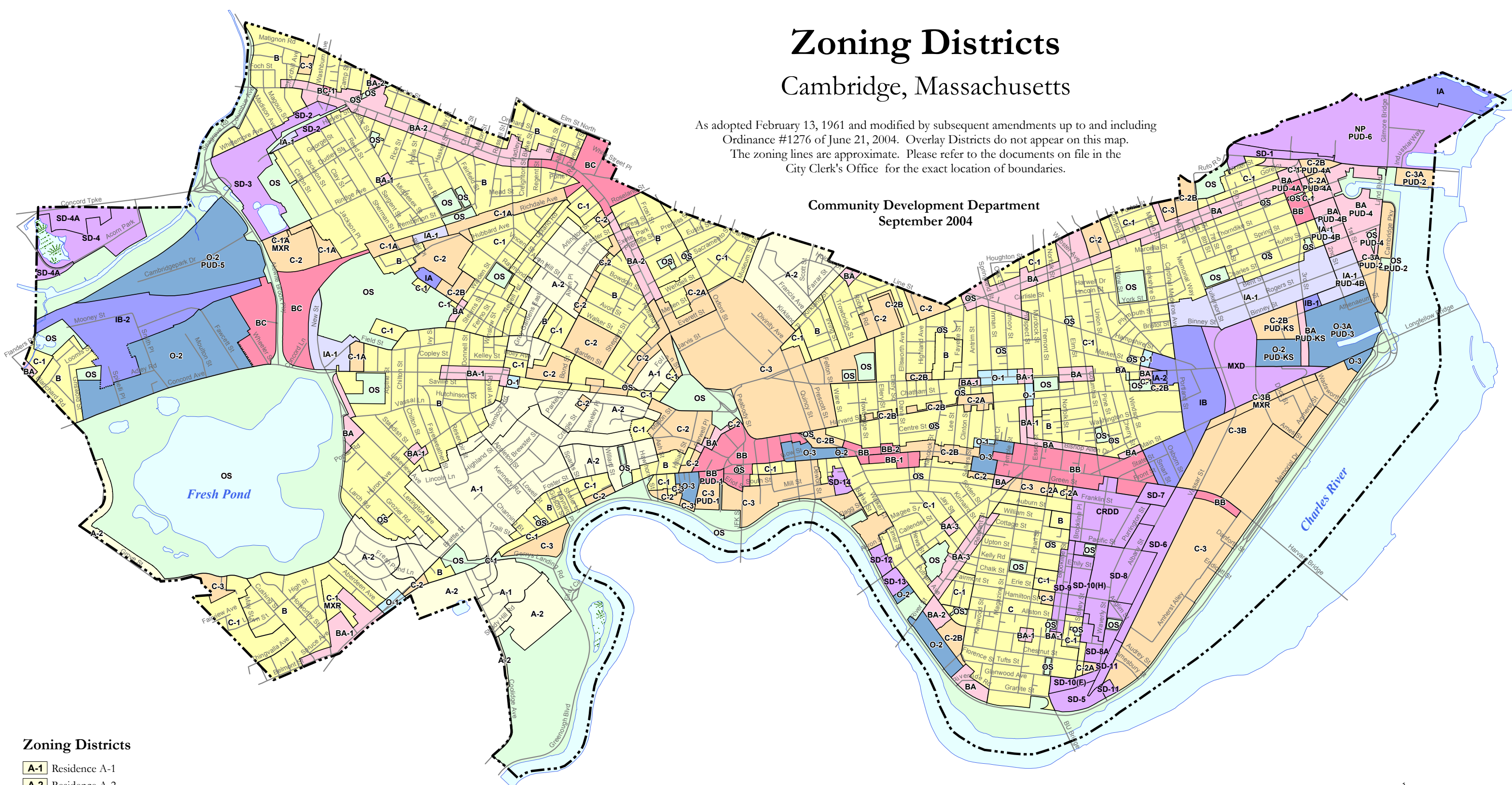
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Zoning Districts

Cambridge, Massachusetts

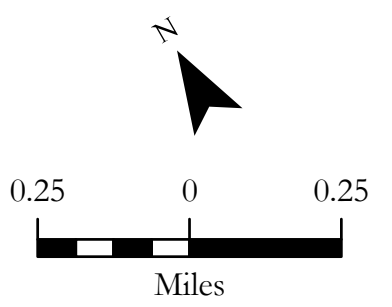
As adopted February 13, 1961 and modified by subsequent amendments up to and including Ordinance #1276 of June 21, 2004. Overlay Districts do not appear on this map. The zoning lines are approximate. Please refer to the documents on file in the City Clerk's Office for the exact location of boundaries.

Community Development Department
September 2004



Zoning Districts

- | | | | | |
|----------------------------|----------------------------|--------------------------|---|----------------------------------|
| A-1 Residence A-1 | C-3B Residence C-3B | BB Business B | IB-2 Industry B-2 | SD-1 Special District-1 |
| A-2 Residence A-2 | O-1 Office-1 | BB-1 Business-1 | IB Industry B | SD-2 Special District-2 |
| B Residence B | O-2 Office-2 | BB-2 Business 2 | IC Industry C | SD-3 Special District-3 |
| C Residence C | O-3 Office-3 | BC Business C | MXD Mixed Use Development | SD-4 Special District-4 |
| C-1 Residence C-1 | O-3A Office-3A | BC-1 Business C-1 | PUD Planned Unit Development Overlay | SD-4A Special District-4A |
| C-1A Residence C-1A | BA Business A | IA-1 Industry A-1 | MXR Mixed Use Residential Overlay | SD-5 Special District-5 |
| C-2 Residence C-2 | BA-1 Business A-1 | IA-2 Industry A-2 | NP North Point District | SD-6 Special District-6 |
| C-2A Residence C-2A | BA-2 Business A-2 | IA Industry A | CRDD Cambridgeport Revitalization Development District | SD-7 Special District-7 |
| C-2B Residence C-2B | BA-3 Business A-3 | IB-1 Industry B-1 | | SD-8 Special District-8 |
| C-3 Residence C-3 | | | | SD-8A Special District-8A |
| C-3A Residence C-3A | | | | SD-9 Special District-9 |



LONG-TERM DEVELOPMENT PATTERNS

The value of real estate in Cambridge makes continued development likely, at least for the foreseeable future. This development is expected to continue in all of the former industrial districts of the city (East Cambridge, Cambridgeport, and Alewife), and will be most striking in the formerly undeveloped area of North Point. This level of development can provide challenges to a municipality that hopes to preserve those aspects of community life its residents most value.

However, given recent amendments its zoning ordinance, the clear and coordinated nature of its PUD process, continued attention to Transportation Demand Management, and recent improvements to its infrastructure, Cambridge is in an excellent position to make development an asset to the community.

D. Population Characteristics

Cambridge is a shifting mosaic of cultural and demographic diversity brought about by decades of immigrants seeking jobs in factories, as well as people from all over the world attracted to the many institutions of higher education in the region. Residents come from a wide range of age groups, races, and income levels. Effectively responding to the open space and recreational needs of such a diverse population is a significant challenge for the city.

POPULATION SIZE

The 2000 Census results state that the population of Cambridge is 101,355, a 5.8% increase since 1990. Previously, the population of the city had been in a steady decline since its peak in 1950 of 120,740. Long-term decline can be traced to out-migration, especially in the 1950s and 60s, and falling birth rates. Corresponding to state and national trends, families are smaller, fewer families are forming, and household size has declined. On the other hand, population growth in the past decade can be traced to new housing construction, new residents, and even better preparation on the part of the U. S. Census Bureau. The table below illustrates the population in Cambridge since 1940.

Cambridge: Total Population 1940-2000	
1940	110,879
1950	120,740
1960	107,716
1970	100,361
1980	95,322
1990	95,802
2000	101,355

Source: U. S. Census Bureau, 2000

POPULATION DENSITY

Open space and recreation issues are especially important for areas with high population densities. The population density in Cambridge is approximately 15,942 persons per square mile, which is high compared to both state and national levels.

HOUSEHOLD COMPOSITION AND SIZE

Households with or without children, single adults, and senior citizens all have quite different open space and recreational needs. People that reside in households that consist of children are more likely to utilize playgrounds and play areas designed for use by children. Families with young children may desire tot lots and small playgrounds while children that are a little older may use playing fields for both organized and pick up sports. Those from households that do not consist of children will probably desire different types of recreational opportunities, such as passive open spaces and facilities that are not specifically designed for children such as basketball or tennis courts and jogging and walking trails.

The US Census defines "family" as a householder plus one or more persons related to the householder by birth, marriage, or adoption. Compared with time past, fewer Cambridge households are composed of families. In 1950, nearly nine out of ten households lived as families; in 2000, less than 42% did (in contrast, two thirds (67%) of all households in Middlesex County consist of families). Just under 18% of Cambridge households have children, while people living alone occupy forty-one percent of all households and most of the remaining households are comprised of either "unrelated persons" (roommates or unmarried partners) or couples without children.

Household Composition in Cambridge, 2000

<u>Household Type</u>	<u>Number</u>	<u>Percent</u>
Couples with Children	4,835	11.3%
Couples w/out Children	7573	17.8%
Single Parent Families	2,668	6.3%
Other Family Households	2,519	5.9%
Total Family Households	17,595	41.3%
Families with Children	7,503	17.6%
Roommates	7,371	17.3%
Single Persons Alone	17,649	41.4%
Total Non-Family Households	25,020	58.7%
Total Household	42,615	100.0%

Source: U. S. Census Bureau, 2000

The number of persons per household in 2000 decreased slightly since 1990, from 2.08 to 2.03 persons per household. This is most likely due to the significant number of new housing units constructed during this period. Furthermore, decreasing household size in Cambridge has been a trend over the last few decades.

Household Size in Cambridge, 1950, 1990, 2000

	1950	1990	2000
Number of households	32,921	39,337	42,615
Persons per household	3.27	2.08	2.03

Source: U. S. Census Bureau, 2000

LIFE STAGES

Open space needs also vary in different stages of life. While all age groups need parks, green space and recreation, their levels of activity, access, and interest often differ widely.

The percentage of adults aged 20 and over rose slightly since 1990 in Cambridge. Similarly, the percentage of residents under 20 has decreased. This trend has been occurring since 1960 as the tables below show.

Age Structure in Cambridge, 1960 - 2000

Age	1960	1970	1980	1990	2000
0 - 4	9,251	5,919	3,834	4,759	4,125
5 - 14	13,810	10,760	8,120	6,704	7,266
15 - 19	9,440	9,705	9,033	7,469	7,438
20 - 34	28,811	37,005	40,770	37,542	41,292
35 - 64	33,787	25,272	22,692	29,257	31,952
65+	12,617	11,700	10,871	10,071	9,282
Total	107,716	100,361	95,322	95,802	101,355

Source: U.S. Census Bureau, 2000

Age Structure Percent of Population, 1960 - 2000

Age	1960	1970	1980	1990	2000
0 - 4	8.6%	5.9%	4.0%	5.0%	4.1%
5 - 14	12.8%	10.7%	8.5%	7.0%	7.2%
15 - 19	8.8%	9.7%	9.5%	7.8%	7.3%
20 - 34	26.7%	36.7%	42.8%	39.2%	40.7%
35 - 64	31.4%	25.2%	23.8%	30.5%	31.5%
65+	11.7%	11.7%	11.4%	10.5%	9.2%
Total	100.0%	100.0%	100.0%	100.0%	100.0%

Source: U. S. Census Bureau, 2000

INCOMES AND POVERTY

The income and poverty levels of residents in Cambridge can affect the level of access to open space and recreational activities. People with lower household incomes have a more difficult time accessing recreational opportunities that are not easily reached by means other than a private automobile. On the contrary, people with higher incomes are generally able to travel farther to get to open space and recreational facilities.

The median family income has risen 30 percent between 1980 and 1990 (\$31,943 to \$39,990 - all figures are in 1990 dollars,) while the median household income has risen 25 percent, from \$25,438 to \$33,140. Despite these increases, lower incomes and poverty are a continuing problem for many Cambridge families, particularly for non-white families and households. Among the 101 cities in the Boston metropolitan area, Cambridge ranked in the bottom ten percent in median family income. The table below indicates that household income levels vary sharply by race in Cambridge.

Household Income by Race in Cambridge, 1990

<u>Race/Origin</u>	<u>'90 Mean Household Income</u>
All Races	\$46,079
White	\$49,500
Black	\$29,053
Asian	\$35,217
Hispanic	\$32,409

Source: U.S. Census Bureau, 1990

Income Distribution: 1980 and 1990

	<u>1980</u>	<u>1990</u>
Low Income	46.0%	35.0%
Moderate Income	23.4%	18.5%
Middle Income	16.3%	20.8%
Upper Income	14.3%	25.7%

Source: U.S. Census Bureau, 1990

The map below shows that low and moderate-income residents are primarily concentrated in the city's eastern neighborhoods, and in parts of North Cambridge. These are also the city's most densely populated areas, and typically the most lacking in open spaces.

EMPLOYMENT AND OPEN SPACE

The nature of employment and the number of employees, especially non-Cambridge residents, are noteworthy factors regarding open space and recreation planning. In the past most employees in the city also lived in Cambridge. Today, four-fifths of employees in the city live elsewhere; therefore they may utilize open space and recreational facilities in notably different ways than residents.

Approximately 115,000 jobs exist in Cambridge, of which 12,000 (net) were created during the 1990s. Employment in Cambridge is primarily clustered along the city's main artery, Massachusetts Avenue, which links Harvard, MIT and North Cambridge, or in the once-industrial periphery of Cambridge (Alewife and the rail yards to the west and north, East Cambridge, North Point, Kendall Square and Cambridgeport to the east.) Each of these areas has undergone redevelopment to varying extent in the past two decades. Most new employment has been in office and research and development. As the city has steadily lost traditional manufacturing enterprises, in such areas as food, footwear, machine shops and